Eastern Mennonite University

Programming in Java

Spring 2023

Course Number:	CS 245 A
Location:	LB 106
Date / Time:	MW 12:30AM - 1:30PM, F 11:50AM - 1:05PM
Credits:	2
Instructor:	Stefano Colafranceschi, PhD
Office:	Suter Science Center 019H
Office hours:	see table at last page
	(scheduled appointments are preferred)
Contact Info:	email stefano.colafranceschi@emu.edu, office phone 540-432-4413

Course Description

"We want to get engineers to think about something else*".

Java is everywhere! Java is used by 10 million developers and it's running on 3 billion devices! Thanks to Java portability, you will be able to develop code for several different platforms/architectures.

The way we will learn programming is.. by programming a lot! Research has shown that active learning methods are more effective than passively taking notes. Rather than have you listen to lectures in class and work through problems during homework, you will learn about key concepts and start assignments during class time.

This course does NOT fulfill any EMU Core requirements.

---

*James Gosling, Creator of Java Programming language

Learning Objectives

Upon completion of the course students will be able to:

1. Fundamental problem-solving techniques using a modern and object-oriented programming language (SO1 P3), (SO7 P1)

2. Explain fundamental programming concepts (e.g, variables, methods, decisions, loops, arrays, objects) using appropriate terminology (SO7 P1)

3. Read and interpret software specifications and write source code from them (SO7 P1)

Program Student Outcomes

SO1) An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics

– P3 Decompose a complicated challenge into manageable components

SO7) An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

– P1 Learn to identify the constituent components of a product, process, or project

Prerequisites

No previous programming experience required (if you have, that's good!).

Main References

This course requires (and it's aligned with) Dr. Mayfield's free and open-source textbook (online available PDF).

Allen Downey and Chris Mayfield (2017): Think Java: How to Think Like a Computer Scientist, 2nd Ed. Green Tea Press, Needham, MA. http://greenteapress.com/wp/think-java-2e/

You are certainly welcome to use additional resources, including other textbooks.

Description and Assessment of Assignments

Assignments
Students are encouraged to complete all assignments in sync with the lecture dates. Late submissions will receive 0 points, unless the student is able to provide a reasonable justification for the delayed submission. All course material is intended to enhance the learning experience by giving students hands-on training. All material from readings, class discussions/lectures, and laboratory activities may be included on exams.

Assignment Submission Policy
Out-of-class activities will require work outside of class time. Meet the deadlines and try to submit your work using a nice template, where applicable LaTeX is preferred (if you need guidance, just come to my office!). Don't forget to proofread your work. If an assignment is a code, it is mandatory that it should compile.

Exams
There will be one written exam administered during the course and one final exam at the end of the course. The first exam would/might be comprised of multiple choice questions, matching, fill in the blank, debug a code and/or essay/short answer. No make-up exams will be given without prior approval of the instructor. Each student is expected to remain in the exam room until his or her exam is completed. The final exam will be a programming project of your choice and require a live demonstration and polished source code.

Grading Policy

Course final grades will be determined using the following tables.

(a) **Grading Breakdown**
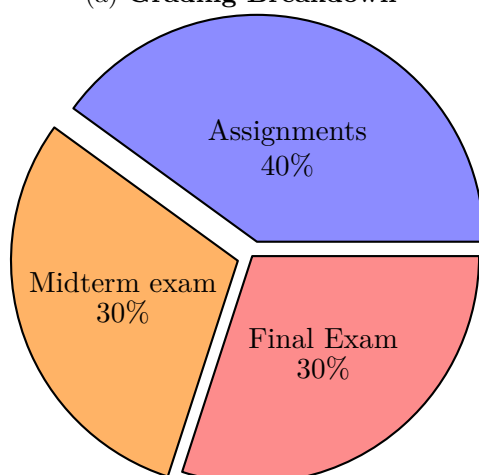
(b) **Grading Scale**		
Grading	GPA	%
A	4.0	95 - 100
A-	3.7	91 - 96
B+	3.3	87 - 92
B	3.0	83 - 88
B-	2.7	79 - 84
C+	2.3	75 - 80
C	2.0	71 - 76
C-	1.7	67 - 72
D+	1.3	63 - 68
D	1.0	59 - 64
F	0	60

Early Graded Experience
First and second-year students enrolled in this course will receive a grade of satisfactory (SA), warning

(WA), or UN (unsatisfactory) after the fourth week of semester-long classes and after the third week of half-semester classes. This grade is intended to provide students with feedback on their academic performance and engagement in this course. Students who receive a WA or UN grade will be expected to discuss with me, within one week of receiving their grades, plans for improving their performance in this course.

Grading Timeline

Exam grades will be posted within a few business days after the examination has been completed. Make up exams/quizzes/Labs will not be given unless arrangements have been made with me prior to the scheduled exam/quiz/Lab date and there is a valid reason (example: doctor's note). If the exam/out of class work/Lab is missed without a valid reason, a score of zero will be applied to the student's grade.

Course Outline

The lecture schedule is tentative and depending on the course pace. Please check regularly schedule's updates posted online. Exam and assignment due dates will remain as listed regardless of lecture pace.

	Mon	Wed	Fri
W01	Jan 9th **1** 12.30 - 1.30 PM	11th 12.30 - 1.30 PM	13th **2** 11.50 - 1.05 PM
W02	16th 12.30 - 1.30 PM	18th **3** 12.30 - 1.30 PM	20th **4** 11.50 - 1.05 PM
W03	23rd **5** 12.30 - 1.30 PM	25th **6** 12.30 - 1.30 PM	27th **7** 11.50 - 1.05 PM
W04	30th **8** 12.30 - 1.30 PM	Feb 1st **9** 12.30 - 1.30 PM	3rd **10** 11.50 - 1.05 PM
W05	6th **11** 12.30 - 1.30 PM	8th **12** 12.30 - 1.30 PM	10th **13** 11.50 - 1.05 PM
W06	13th **14** 12.30 - 1.30 PM	15th **15** 12.30 - 1.30 PM	17th **16** 11.50 - 1.05 PM
W07	20th **17** 12.30 - 1.30 PM	22nd **18** 12.30 - 1.30 PM	24th **19** 11.50 - 1.05 PM
W08	27th **20** 12.30 - 1.30 PM	Mar 1st **21** 12.30 - 1.30 PM	3rd **22** 11.50 - 1.05 PM

Week	Lecture	Topic	Assignements
1			
	1	*Presentation*	
	2	*Intro to Java*	*Quiz about Java* *Read Chapter1: Computer programming*
2			
	3	*Intro to programming*	
	4	*LAB1: Building a Java program*	
3	**5**	*LAB2: Style guide and Checkstyle*	
	6	*Arithmetic*	*Read Chapter 2: Variables and operators*
	7	*LAB3: Concatenation and types*	*Submit: Input and Output*
4	**8**	*Data Types*	*Read Chapter 3: Input and output*
	9	*LAB5: Algorithm Implementation*	
	10	*LAB6: Formatting output in Java*	
5	**11**	*Methods*	*Read Chapter 4: Methods and testing*
	12	*LAB7: Drawing shapes and houses*	
	13	*LAB8: Program testing with JUnit*	*Submit: Methods and Testing*
6	**14**	*CODING EXAM*	
	15	*Boolean logic*	*Read Chapter 5: Conditionals and logic*
	16	*LAB09: Methods and conditional Statements*	
7	**17**	*Loops and strings*	*Read Chapter 6: Loops and strings*
	18	*LAB11: Validation using do-while*	
	19	*LAB12: Practice with nested loops*	*Submit: Decisions and Logic*
8	**20**	*Arrays and references*	*Read Chapter 7: Arrays and references*
	21	*LAB13: Processing array elements*	
	22	*LAB14: Computing basic statistics*	

Final Exam

The final exam is foreseen 5/3/2023 8.00AM (LB106).

Additional Policies

Classroom Climate
The free discourse of ideas should be expected in this class. The classroom is a space that thrives on the open exchange of ideas, thoughts, emotions, and convictions. You may find that some of the class readings and/or discussions challenge your views and theoretical frameworks. As your instructor, I expect you to be open to differences and maintain a willingness to analyze issues from frameworks that may or may not be quite feel comfortable for you. I have opinions, which I may express from time to time. I invite you to respectfully express either agreement or disagreement without fear of consequences. While we in this class may challenge your views, be assured that you will experience no adverse consequences for disagreeing with me as your instructor. If you feel that I am violating this commitment, please make an appointment to meet outside of class so that we can discuss the issue. Similarly, please be sensitive in your class participation by not unfairly dominating discussions. Be aware of others right to speak and welcome questions from your classmates. My sincere goal is to create a safe space in which everyone feels that they can participate in scholarly dialogue that values thinking, study, and professionalism. (Adapted from Margaret Sallee and Kathryn Roulston)

Inclusive, Community-creating Language Policy
Eastern Mennonite University expects all its faculty, staff, and students to adopt inclusive written and spoken language that welcomes everyone regardless of race or ethnicity, gender, disabilities, age, and sexual orientation. We will use respectful and welcoming language in all our official departmental documents and correspondence, including those put forth by way of Internet communication, and throughout all academic coursework, inclusive of classroom presentations and conversations, course syllabi, and both written and oral student assessment materials.

Attendance
Students are expected to attend each class and be punctual (attendance might be taken at the beginning of each class meeting). Late arrivals and early departures are disrespectful and disrupt the learning environment. Missing lectures will put students at a disadvantage in completing the course successfully. While there is no absence penalty, with the exception of missing exams or laboratory activities, students are still responsible for all material discussed during class meetings and meeting course-related deadlines.

Class Participation
Students are expected to actively participate in all class activities and discussions. Learning takes places doing something or saying something, so be ready to answer questions and/or directly contribute in performing activities.

Individual Tutoring
Please take advantage of the free individual tutoring from our writing tutors. Writing tutors are strong writers who hold scheduled one-on-one sessions with students and are an excellent resource for writers at any level or at any stage in the writing process. Please remember that writing tutors do not provide an editing or proofreading service. They will help you put what you learn into practice and will work with you to improve your own proofreading and editing skills. To make an appointment, please access ASC Tutoring (https://emu.campus.eab.com and also accessible through myEMU).

Electronic Devices
Students are asked to please refrain from using any electronic device (such as cell/smart phones) during lecture and laboratory activities. Those who wish to take supplemental notes via a laptop or tablet may do so but all work needs to be course-related. Taking photographs, video/audio recordings of in-class material is prohibited.

Academic Honesty

Academic Integrity Policy (AIP): EMU faculty and staff care about the integrity of their own work and the work of their students. They create assignments that promote interpretative thinking and work intentionally with students during the learning process. Honesty, trust, fairness, respect, and responsibility are characteristics of a community that is active in loving mercy, doing justice, and walking humbly before God. EMU defines plagiarism as occurring when a person presents as one's own someone else's language, ideas, or other original (not common-knowledge) material without acknowledging its source. (Adapted from the Council of Writing Program Administrators). This course will apply EMU's Academic Integrity Policy to any occurrences of academic dishonesty (see current UG catalog).

Academic Integrity

Students at Eastern Mennonite University are accountable for the integrity of the work they submit. Thus, you should be familiar with EMU's Academic Integrity Policy in order to meet the academic expectations concerning appropriate documentation of sources. In addition, EMU is using Turnitin, a learning tool and plagiarism prevention system. For this class, you will submit your papers to Turnitin from Moodle. When grading your work, I will interpret the originality report accordingly, and I will follow the Academic Integrity Policy as appropriate. For more information about Turnitin[†]. Note that submitted papers become part of the Turnitin.com database.

Academic Success

If you have a physical, psychological, medical, or learning disability that may impact your work in this course, it is your responsibility to contact the Office of Academic Access[‡]) on the third floor of the Hartzler library. This office will work with you to establish eligibility and to coordinate reasonable accommodations. All information and documentation is treated confidentially.

Title IX

It is important for you to know that all faculty members are required to report known or alleged incidents of sexual violence (including sexual assault, domestic/relationship violence, stalking). That means that I cannot keep information about sexual violence confidential if you share that information with me. For example, if you inform me of an issue of sexual harassment, sexual assault, or discrimination I will keep the information as private as I can, but I am required to bring it to the attention of the institutionś Title IX Coordinator. Incidents that have occurred on campus, at a campus event, and/or while a student at EMU require follow up by the Title IX Coordinator. If you would like to talk to the Title IX Coordinator directly, Rachel Roth Sawatzky can be reached at 540-432-4133 or roth.sawatzky@emu.edu. Additionally, you can also report incidents or complaints through our online portal at . You may report, confidentially, incidents of sexual violence if you speak to Counseling Services counselors, Campus Ministries pastors, and Health Services personnel providing clinical care. These individuals, as well as the Title IX Coordinator, can provide you with information on both internal and external support resources. Please refer to the Student Handbook which can be found at https://emu.edu/studentlife/ for additional policies, information, and resources available to you.

Online Learning

The learning process requires presence and participation. This applies to classes taught online as well as in-person. To participate fully in online classes, students are expected to be engaged via Zoom during all normally scheduled class times, with camera turned on and microphone and keyboard available for class engagement when appropriate. Students should do the best they can, given their particular situation, to create an environment that will foster learning. Students should not be working or driving during scheduled class times. If students are not actively engaged in class discussions or responding to a professor's question, the professor may inform students that they have been marked absent for the class period, regardless of

---

[†]please see: https://www.turnitin.com

[‡]http://www.emu.edu/academics/access

whether they were "logged into" the class. As with in-person classes, students are invited to be fully present in the online environment.

Students who need to keep their cameras off during class should consult with their professor or Zach Yoder, Assistant Provost (zachary.yoder@emu.edu, 540.432.4159)

Time	Monday	Tuesday	Wednesday	Thursday	Friday
8:00 am – 10:00 am	Editorial Activities SSC 19H	Digital Circuit SSC 017	Editorial Activities SSC 19H	Digital Circuit SSC 017	Editorial Activities SSC 19H
9:00 am		CERN DPG zoom			CERN Management zoom
10:00 am – 11:00 am	1) University 2) ABET EMU		University EMU	1) Activities in lab 2) Class preparation	
12:00 am – 1:00 pm	Java LB 106		Java LB 106		Java LB 106
2:00 pm	Office Hours SSC 19H		Office Hours SSC 19H		Office Hours SSC 19H
3:00 pm	Networking LB 106	Capstone SSC 103	Networking LB 106	Ethics SSC 005	Networking LB 106
4:00 pm – 6:00 pm	1) Activities in lab 2) Class preparation	1) Activities in lab 2) Class preparation	1) Activities in lab 2) Class preparation	1) Activities in lab 2) Class preparation	1) Activities in lab 2) Class preparation